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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,762	06/25/2003	Naoto Kusumoto	07977-004002	2332

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EXAMINER
FLORES RUIZ, DELMA R

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/602,762	KUSUMOTO ET AL.	
	Examiner	Art Unit	
	Delma R. Flores Ruiz	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/13/04;3/8/04;* 8/28/03; 12/1/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John F. Hayden on 12/8/2004. The application has been amended as follows:

In claim 19, line 4: delete "times" and insert – beams --,

In claim 23, line 4; delete "times" and insert – beams --,

In claim 27, line 4; delete "times" and insert – beams --,

In claim 32, line 4; delete "times" and insert – beams --,

In claim 36, line 4; delete "times" and insert – beams --,

In claim 41, line 4; delete "times" and insert – beams --.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1- 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al (6;242,292).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 19, Yamazaki discloses a method of manufacturing a semiconductor device comprising; forming a semiconductor film having a thickness between 150 and 1000 Å over a substrate (Column 12, Lines 52 – 55); emitting pulse laser beam at a rate of N beam per second (said limitation only recites facts and

features that are well known and expected, the same features that essentially result from the use or application of a the pulse laser beam at a rate a N beam per second, and therefore said limitations are said to be essential disclosed in the teachings of Yamazaki) shaping the pulse laser into beams elongated in one direction at an irradiation surface through an optical system, the beam having a normal-distribution type energy profile of width L (m) perpendicular to the direction, and the beams having substantially a contestant energy distribution along the direction (The value of L (m) is not clearly defined as being a specific value by the applicant, and therefore it can be assumed that it has any value, such as zero. The examiner t assumes in the present rejection that L(m) has a value of zero); applying the beams to an arbitrarily selected portion of the semiconductor film; and scanning the semiconductor film with the beams perpendicular to the direction at a speed V (m/s), wherein the number of beams applied to the arbitrarily selected portion in one scan satisfies a relationship $3 \leq LN/V \leq 100$, and wherein the width L (m) is defined as beams in a region having 5% or more of an energy density with respect to a maximum energy density of the beams on the irradiation surface (Abstract, Column 1, Lines 53 – 65, Column 2, Lines 36 – 44, Column 3, Lines 20 – 67, and Column 4, Lines 1 – 3, 37 – 42).

Regarding claims 20, 21, 24, 25, 29, 30, 33, 34, 38, 39, 42 and 43, Yamazaki discloses a width is between 0.1 and 1 cm and the beam along the direction has a length between 10 and 360 cm (Column 6, Lines 20 – 23).

Regarding claims 22, 26, 31, 35, 40 and 44, Yamazaki discloses a scanning step is conducted in air (said limitation only recites facts and features that are well known and expected, the same features that essentially result from the use or application of a scanning step is conducted in air, and therefore said limitations are said to be essentially disclosed in the teachings of Yamazaki).

Regarding claim 23, Yamazaki discloses a method of manufacturing a semiconductor device comprising; forming a semiconductor film having a thickness between 150 and 1000 Å over a substrate (Column 12, Lines 52 – 55); emitting pulse laser beam at a rate of N beam per second (said limitation only recites facts and features that are well known and expected, the same features that essentially result from the use or application of a the pulse laser beam at a rate a N beam per second, and therefore said limitations are said to be essential disclosed in the teachings of Yamazaki) shaping the pulse laser into beams elongated in one direction at an irradiation surface through an optical system, the beam having a normal-distribution type energy profile of width L (m) perpendicular to the direction, and the beams having substantially a contestant energy distribution along the direction (The value of L (m) is not clearly defined as being a specific value by the applicant, and therefore it can be assumed that it has any value, such as zero. The examiner t assumes in the present rejection that L(m) has a value of zero); and a average single pulse energy density of

the beam between 100 and 500 mJ/cm^2 (Column 7, Lines 55 – 63) applying the beams to an arbitrarily selected portion of the semiconductor film; and scanning the semiconductor film with the beams perpendicular to the direction at a speed V (m/s), wherein the number of beams applied to the arbitrarily selected portion in one scan satisfies a relationship $3 \leq LN/V \leq 100$, and wherein the width L (m) is defined as beams in a region having 5% or more of an energy density with respect to a maximum energy density of the beams on the irradiation surface (Abstract, Column 1, Lines 53 – 65, Column 2, Lines 36 – 44, Column 3, Lines 20 – 67, and Column 4, Lines 1 – 3, 37 – 42).

Regarding claim 27, Yamazaki discloses a method of manufacturing a semiconductor device comprising; forming a semiconductor film having a thickness between 150 and 1000 Å over a substrate (Column 12, Lines 52 – 55); emitting pulse laser beam at a rate of N beam per second (said limitation only recites facts and features that are well known and expected, the same features that essentially result from the use or application of a the pulse laser beam at a rate a N beam per second, and therefore said limitations are said to be essential disclosed in the teachings of Yamazaki); shaping the pulse laser into beams elongated in one direction at an irradiation surface through an optical system, the beam having a normal-distribution type energy profile of width L (m) perpendicular to the direction, and the beams having substantially a contestant energy distribution along the direction (The value of L (m) is

not clearly defined as being a specific value by the applicant, and therefore it can be assumed that it has any value, such as zero. The examiner t assumes in the present rejection that L(m) has a value of zero); applying the beams to an arbitrarily selected portion of the semiconductor film; and scanning the semiconductor film with the beams perpendicular to the direction at a speed V (m/s), wherein the pulse laser comprising an excimer laser (Column 3, Lines 20 – 28, and Column 4, Lines 35 – 42); wherein the number of beams applied to the arbitrarily selected portion in one scan satisfies a relationship $3 \leq LN/V \leq 100$, and wherein the width L (m) is defined as beams in a region having 5% or more of an energy density with respect to a maximum energy density of the beams on the irradiation surface (Abstract, Column 1, Lines 53 – 65, Column 2, Lines 36 – 44, Column 3, Lines 20 – 67, and Column 4, Lines 1 – 3, 37 – 42).

Regarding claim 28, Yamazaki discloses a average single pulse energy density of the beam between 100 and 500 mJ/cm^2 (Column 7, Lines 55 –63).

Regarding claim 32, Yamazaki discloses a method of manufacturing a semiconductor device comprising; forming a semiconductor film having a thickness between 150 and 1000 Å over a substrate (Column 12, Lines 52 – 55); emitting pulse laser beam at a rate of N beam per second (said limitation only recites facts and features that are well known and expected, the same features that essentially result

from the use or application of a the pulse laser beam at a rate a N beam per second, and therefore said limitations are said to be essential disclosed in the teachings of Yamazaki) shaping the pulse laser into beams elongated in one direction at an irradiation surface through an optical system, the beam having a trapezoidal energy profile of width L (m) perpendicular to the direction, and the beams having substantially a contestant energy distribution along the direction (The value of L (m) is not clearly defined as being a specific value by the applicant, and therefore it can be assumed that it has any value, such as zero. The examiner t assumes in the present rejection that L (m) has a value of zero); applying the beams to an arbitrarily selected portion of the semiconductor film; and scanning the semiconductor film with the beams perpendicular to the direction at a speed V (m/s), wherein the number of beams applied to the arbitrarily selected portion in one scan satisfies a relationship $3 \leq LN/V \leq 100$, and wherein the width L (m) is defined as beams in a region having 5% or more of an energy density with respect to a maximum energy density of the beams on the irradiation surface (Abstract, Column 1, Lines 53 – 65, Column 2, Lines 36 – 44, Column 3, Lines 20 – 67, and Column 4, Lines 1 – 3, 37 – 42).

Regarding claim 36, Yamazaki discloses a method of manufacturing a semiconductor device comprising; forming a semiconductor film having a thickness between 150 and 1000 Å over a substrate (Column 12, Lines 52 – 55); emitting pulse laser beam at a rate of N beam per second (said limitation only recites facts and

features that are well known and expected, the same features that essentially result from the use or application of a the pulse laser beam at a rate a N beam per second, and therefore said limitations are said to be essential disclosed in the teachings of Yamazaki) shaping the pulse laser into beams elongated in one direction at an irradiation surface through an optical system, the beam having a trapezoidal energy profile of width L (m) perpendicular to the direction, and the beams having substantially a contestant energy distribution along the direction (The value of L (m) is not clearly defined as being a specific value by the applicant, and therefore it can be assumed that it has any value, such as zero. The examiner t assumes in the present rejection that L(m) has a value of zero); and a average single pulse energy density of the beam between 100 and 500 mJ/cm^2 (Column 7, Lines 55 –63) applying the beams to an arbitrarily selected portion of the semiconductor film; and scanning the semiconductor film with the beams perpendicular to the direction at a speed V (m/s), wherein the number of beams applied to the arbitrarily selected portion in one scan satisfies a relationship $3 \leq LN/V \leq 100$, and wherein the width L (m) is defined as beams in a region having 5% or more of an energy density with respect to a maximum energy density of the beams on the irradiation surface (Abstract, Column 1, Lines 53 – 65, Column 2, Lines 36 – 44, Column 3, Lines 20 – 67, and Column 4, Lines 1 – 3, 37 – 42).

Regarding claim 37, Yamazaki discloses a pulse laser comprising an excimer laser (Column 3, Lines 20 – 28 and Column 4, Lines 35 – 42).

Regarding claim 41, Yamazaki discloses a method of manufacturing a semiconductor device comprising; forming a semiconductor film having a thickness between 150 and 1000 Å over a substrate (Column 12, Lines 52 – 55); emitting pulse laser beam at a rate of N beam per second (said limitation only recites facts and features that are well known and expected, the same features that essentially result from the use or application of a the pulse laser beam at a rate a N beam per second, and therefore said limitations are said to be essential disclosed in the teachings of Yamazaki); shaping the pulse laser into beams elongated in one direction at an irradiation surface through an optical system, the beam having a trapezoidal energy profile of width L (m) perpendicular to the direction, and the beams having substantially a contestant energy distribution along the direction (The value of L (m) is not clearly defined as being a specific value by the applicant, and therefore it can be assumed that it has any value, such as zero. The examiner t assumes in the present rejection that L(m) has a value of zero); applying the beams to an arbitrarily selected portion of the semiconductor film; and scanning the semiconductor film with the beams perpendicular to the direction at a speed V (m/s), wherein the pulse laser comprising an excimer laser (Column 3, Lines 20 – 28, and Column 4, Lines 35 – 42); wherein the number of beams applied to the arbitrarily selected portion in one scan satisfies a relationship $3 \leq LN/V \leq$

100, and wherein the width L (m) is defined as beams in a region having 5% or more of an energy density with respect to a maximum energy density of the beams on the irradiation surface (Abstract, Column 1, Lines 53 – 65, Column 2, Lines 36 – 44, Column 3, Lines 20 – 67, and Column 4, Lines 1 – 3, 37 – 42).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov.

Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Delma R. Flores Ruiz
Examiner
Art Unit 2828
DRFR/MH
December 15, 2004

Min Sun Harvey
Supervisor Patent Examiner
Art Unit 2828